Lake Park Brick Arch Bridge
Spanning the north ravine and forming the northern entrance to Lake Park at the junction of Lake Park Drive and Lincoln Memorial Drive
Milwaukee
Milwaukee County
Wisconsin

HAER No. WI-20

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

Historic American Engineering Record
National Park Service
U. S. Department of the Interior
P. O. Box 37127
Washington, D. C. 20013-7127

HAER
WI3,
40-MILWA,
49-

HISTORIC AMERICAN ENGINEERING RECORD

Lake Park Brick Arch Bridge

HAER No. WI-20

Location:	Spanning the north ravine and forming the northern entrance to Lake Park at the junction of Lake Park Drive and Lincoln Memorial Drive City of Milwaukee, Milwaukee County, Wisconsin UTM: 16.429200.4769170 Quad: Milwaukee, Wisconsin
Date of Construction:	1893
Present Owner:	Milwaukee County
Present Use:	Vehicular and pedestrian bridge
Significance:	The Lake Park Brick Arch Bridge is located in one of Milwaukee's early public parks designed by the notable Boston landscape architect, Frederick Law Olmsted. The span is Wisconsin's only remaining example of a high style masonry bridge. Because of the rarity of masonry construction in bridge design and its association with the Olmsted office, it remains one of the nation's most prominent ornamental park bridges.
Historian:	Edwin Cordes Wisconsin Historic Bridges Project Summer 1987

The brick arch bridge, located at the northern entrance to Lake Park in Milwaukee, is Wisconsin's only surviving example of a decorative, high style masonry arch bridge.[1] (The State contains two other masonry construction bridges which are located almost adjacent to one another in the town of Msnomonie. However, they are utilitarian and have lost much of their original integrity.) The Lake Park bridge continues to carry vehicular traffic and is one of five decorative bridges in the park. All the bridges, with the exception of a large concrete footbridge, were designed by Oscar Sanne and built between the years 1893 and 1898.[2] The brick arch bridge, as well as the other bridges, were part of a large scale plan for the park by the notable landscape architect, Frederick Law Olmsted.

Description

The thirty-five-foot masonry arch spans the north ravine of Lake Park and forms the major entrance to the park to the north. The arcb of tbe bridge is composed of fivs tiers of corbelled, hard sewer brick, laid in Milwaukee cement. The faces of the spandrel and wing walls are laid with a slightly darker brown face brick. The foundation and exposed lower corbelling are compossd of Milwaukee limestone. the 26-foot-wide roadway was originally composed of macadam with six-foot-wide concrete sidewalks. The roadbed has a total lsngth of 100 feet.[3]

The intent of ths architect was to design bridges which should fulfill not only all engineering requirsments, but should also be artistically worthy of the sites the bridges were to occupy."[4] The Brick Arch Bridge and the other bridges in the park designed by Oscar Sanne are of Renaissance Revival style. The masonry bridge is the most heavily detailed of all the park bridges.

Terra cotta detailing is used extensively throughout the structure. The face stones of the arch and four pilasters are of segmented, rusticated terra cotta. Four medallions with floral motifs frame the arch. The railings were composed of terra cotta bricks which form quatrefoil openings. The west railing has sincs been replaced with a cast stone replication, due to deterioration.

The bridge was completed in the summer of 1893, for a total cost of $10,449. All work on the bridgs was done by the Gerhard F. Stuewe Co., a contractor specializing in masonry construction.[5] The company was located at 308 Twentisth Street in Milwaukee. Gerhard ran the business from 1885 until 1905, at which time operations were turned over to his two sons.[6]

The bridge was designed by Oscar Sanne, who was known primarily for his work as an engineer. He specialized in the design of iron and steel bridges, drawspans, viaducts and buildings. Sanne graduated from the Karlsrieche Polytechnic University of Germany with a dsgree in engineering. Examples of the engineer's work include largs steel spans in Oshkosh, DePere and La Crosse, Wisconsin, as well as the Goldsmith Building in Milwaukee. Mr. Sanne was also involved in the design of the structural system for the Machinery Hall at the

Chicago World's Fair of 1893.[7] The engineer began his Milwaukee practice in 1888 and was listed as a practicing civil engineer in the city director until 1900. Sanne was said to have been popular in both the building and business circles, and he received numerous commissions from the city and the Park Commission.[8]

Masonry Construction

The use of masonry in bridge construction is extremely rare in the United States. While providing exceptional strength and durability, brick construction is extremely time-consuming and expensive. Many of the masonry structures found in the United States are actually composite structures with a brick or stone veneer and a cast concrete interior. America's rapid development during the period of industrialization and the increased use of iron and steel often made masonry construction cost-effective. The relativsly short spanning distance for a masonry pier also made its use in navigable waters unacceptable.[9]

Two notable exceptions to the rule were the turn of the century brick railway bridges and East Coast aqueducts. The Pennsylvania Railroad Company rebuilt a large portion of its bridges using masonry construction in a twenty-year span, from 1890 to 1900. Other smaller railroads, such as the B & O, Reading and Fitchburg also constructed brick and stone bridges during this period. The Cabin John Aqueduct, designed by Montgomery C. Meigs to supply water to Washington, D. C., in 1857, is an excellent example of this genre. In general, however, the durability and speed of erection that iron and steel truss bridges afforded, as well as the reduced cost often outweighed the esthetic advantages of masonry construction, limiting their use to park-like settings.[10]

Brick Manufacturing

One of the earliest and most important industries in the city was brick manufacturing. Milwaukse was producing bricks by the end of the 1830s, and business began to boom by 1850. The city's largest brick producer was George Burnham who, by 1870, was producing over fifteen million bricks a year and employing over three hundred men. Burnham and his brother, John, opened their brickyards in 1843. In 1865, they split, forming two separate companies which continued as rivals until the turn of the century.[11]

Brick manufacturing was concentrated in the Menomonee River Valley, just south of the city. The river bluffs were rich with veins of Lacustrine clay deposited from Lake Michigan and provided a convenient location for industrial development. The river also afforded a convenient means of transportation and power.[12]

Milwaukee was one of the most important brick manufacturing cities in the United States during the later half of the nineteenth century. Bricks made in the city were exported to Hamburg and other northern European cities. Bricks

were also manufactured for buildings in U. S. cities like Chicago, St. Louis and New York, as well as Milwaukee. Architects found the characteristic creamy color of the bricks a novelty.[13] The color of the bricks, which was attributed to the large amount of lime and sulfur in the clay, eventually gave Milwaukee the nickmane "The Cream City."

The Milwaukee area also contained a number of limestone quarries which were not only useful for materials used in brick and cement manufacture, but also for foundation construction. There were four area quarries producing high quality white lime, one of which was inside the city limits.[14]

Lake Park

As the public parks movement, under the leadership of such individuals as Andrew Jackson Downing, began to gain support throughout the United States, the need for parks that were available to the masses became evident. Before the 1890s, Milwaukee had numerous private parks which were open to the public for a daily fee. Many of these parks were owned by local breweries which used them as a distribution point for their product.[15] Because of the cost, these parks excluded much of the lower class. During the period from 1870 to 1900, the population of Milwaukee quadrupled from 70,000 to 185,000 people, making the shortage of public recreation areas even more acute.[16]

Precedents, like Hyde Park in London and the new Central Park in New York, were to be imitated in all cities to give respite to the inhabitants of theae unhealthy industrial areas. Milwaukeeans soon became involved in the movement, and the support of social reform-minded Republican candidates in the 1880s eventually led to the establishment of the Milwaukee Park Commission in 1889.[17]

The Park Commission met for the first time in June of that year. The mayor appointed Christian Wahl commission president, a post he retained for ten years. After the initial sale of over $100,000 worth of bonds, the commission began to acquire land throughout the city and county.[18] Lake Park was one of its first purchases, as the commission felt it important to preserve part of the city's most valuable natural asset, the lake shoreline. During the next ten years, more money was spent on this park than any other in the system. Lake Park was compoaed of six different plats, one of the largest being Lueddemann's-On-The-Lake, a private amusement garden. Total cost to acquire the lands was $255,175, necessitating the additional sale of revenue bonds. The total size of the park was 123.7 acres.[19]

The person whose singular position was most influential to the park's development was the commission president. Christian Wahl's personal interest in the completion of the park was expressed in his personal supervision of tree planting. Wahl, who was born in Bavaria, became a prominent businessman in Chicago and owned the country's largest glue manufacturing plant. Aa a member of the Chicago Common Council, he became influential in the city's political scene and was involved in the planning of city parks. Through his work, he

was acquainted with Frederick Law Olmsted. Upon his retirement, Wahl moved to Milwaukee and dedicated himself to civic duties.[20]

The commission hired the nationally-renowned landscape architectural office of Frederick Law Olmsted in 1892 to design the new park lands. The firm was paid $12.50 per acre and was under consulting contract for over three years. The Park Commission was offered a liberal price on the firm's work because they were currently working on the landscaping for the Chicago's World Fair.[21] In February of that year, Olmsted, along with his brother John and Charles Elliot, visited Milwaukee to explore the new park lands.[22]

The original Lake Park plan was very modest, with few changes to the present topography. The final plans of 1895 were much more ambitious. Large amounts of fill (40,000 yards of earth) was used to create a meadow where a ravine once stood. An elaborate grade-separated drive was created and promenades were placed to take full advantage of the views from the bluffs.[23] The Olmsted firm identified the bridge sites, but left their design up to the Park Commission and Sanne. More specific guidelines were given for the Greek Revival-style pavilion, which was designed by the local firm of Ferry and Clas.

After reviewing the lands, Frederick L. Olmsted sent a letter to the Park Commission, criticizing its placement of the park so far from the center of the city. "He wrote of the commissioner's responsibility to provide citizens with the opportunities to enjoy rural scenery at locations convenient to the city."[24] The amount of Frederick Olmsted's involvement with the final design has been questioned. The landscape architect's deep involvement with the Chicago project, and his frequent bouts with illness, suggest that most of the work was overseen by his brother. The majority of the planting design studies are thought to have been carried out by Warren Manning, a young horticultural expert in the firm. Nonetheless, Frederick Olmsted was more than likely consulted regarding the major decisions.[25] The Olmsted office continued its consultation on Lake Park through 1893, and members of the firm visited yearly to record the progress.

Upon completion, the park became one of the city's most popular retreats. The Milwaukee Electric Railway and Light Company built a passenger station designed by Howland Russel at the edge of the park, eliminating the problem of access. For the price of a round-trip streetcar ticket, one could enjoy free concerts in the park, sponsored by the Electric Railway Company.[26]

Many of Olmsted's basic philosophies on landscape design are expressed in the final plans for the park. Undulating meadows fringed with grass, surrounded by groves of trees which preserved the natural undergrowth was important.[27] "Tree species were varied to give interest and tonality to the scene."[28] Quiet places of retreat were found throughout the park. Many paths and roads provided access to the park's best landscape features from many different perspectives. Passive recreation in the form of music concerts was provided for with the construction of a band shell.[29]

WARD 18

Lake Park is contained in the eighteenth ward of the city of Milwaukee. In many respects, this area is much different than the average Milwaukee ward. The average family was headed by either a skilled or a white collar worker. During the period of 1880 to 1910, the area developed much more slowly than the city as a whole. Only one-third of the wards inhabitants were foreign born, and the average house and lot size was one-third larger than the city average; therefore, their average cost was also greater.[30] Builders in the area realized that the socioeconomic level of the residents was much higher than in the northwest and southwest neighborhoods, and they built homes accordingly. Although the streets were the same width as the rest of the city, the use of boulevards made them seem grander. The lake and its views, along with access to the new park and the proximity to the northern edge of the central business district were the primary draws of this area.[31] Overall, this area is a much more affluent portion of the city than surrounding wards.

The homes closest to the lake were even more grand than those located farther west in the ward. Statistics of the period show that majority of families located along the lake fall into two distinct groups, families with older heads of household and those without a mortgage. The percentage of homes with a mortgage increases with the distance from the lake.[32] These characteristics suggest a greater accumulation of wealth in the area. Many of the park commissioners, including Christian Wahl, lived near the lake and, perhaps, this is one of the reasons that so much care was taken in the construction of the park.

The homes surrounding Lake Park, besides being larger, are much more ornate than typical Milwaukee homes. Decorative stone and brick work, porches, stain glass windows and intricate landscaping are common. The architectural significance of the area can be seen in its historic designation. The North Point Historic District, which includes Lake Park, is listed in the National Register of Historic Places.

FOOTNOTES

1 Jeffrey A. Hess & Robert Frame, Historic Bridges in Wisconsin - Stone and Concrete Arch Bridges (Wisconsin Department of Transportation Publications, 1986), Vol. 1, p. 368.

2 Henry Grattan Tyrrell, Artistic Bridge Design (Chicago: Tbe Myron C. Clark Publisbing Company, 1912), pp. 141, 169.

3 "Ornamental Bridges for Lake Park, Milwaukee, Wis.," Engineering News, Vol. XL, No. 7, August 18, 1898, pp. 98-99. A written account of a paper presented by Oscar Sanne at the July 6, 1898, meeting of the Western Society of Engineers.

4 Ibid., p. 98.

5 "Annual Report of the Park Commissioners of the City of Milwaukee - 1894" (Milwaukee: Ed. Keogh Printer, 1894), p. 20.

6 The Milwaukee Business Directory, 1893 to 1906.

7 Milwaukee of Today - The Cream City of the Lakes (Milwaukee and Chicago: Phoenix Publishing Company, 1893), p. 185. A short biography of important city residents is included.

8 Ibid.

9 David Plowden, Bridges: The Spans of North America (New York: W. W. Norton & Company, 1974), pp. 30-31.

10 Carl W. Condit, American Building (Chicago and London: The University of Chicago Press, 1982), pp. 70-73.

11 Robert W. Wells, This Is Milwaukee (Milwaukee: Renaissance Book Company, 1970), p. 115.

12 Ibid., pp. 115-116.

13 Ibid.

14 Built in Milwaukee - An Architectural View of the City (Milwaukee: City of Milwaukee Department of City Development Publications, 1893), p. 30. An architectural survey of the city completed by Landscape Research Inc. for the city of Milwaukee's mayor office.

15 Ibid., pp. 113-116.

16 Diane M. Buck, "Olmsted's Lake Park," Milwaukee History - a publication of the Milwaukee County Historical Society, Vol. 5, No. 3, Autumn 1982, p. 55.

17 Built in Milwaukee, p. 121.

18 Ibid.

19 Olmsted's Lake Park, p. 59.

20 Shirley du Fresne McArthur, North Point Historic District - Milwaukee (Milwaukee: North Point Historical Society, 1981), pp. 77-78. A publication of research done for the National Register of Historic Places nomination.

21 Park Commissioners' Report - 1893, p. 17.

22 Olmsted's Lake Park, p. 57.

23 Park Commissioners' Report - 1898, p. 10.

24 Olmsted's Lake Park, pp. 57-58.

25 Built in Milwaukee, p. 121.

26 Park Commissioners' Report - 1895, p. 16.

27 Olmsted's Lake Park, p. 59.

28 Ibid.

29 Ibid., p. 60.

30 Rodger D. Simon, "The City Building Process - Housing and Services in New Milwaukee Neighborhoods 1880-1910: Large Lots and a View - Ward 18," Transactions of the American Philosophical Society - Philadelphia 1978, Vol. 68, Part 5, pp. 45-49.

31 Ibid., p. 51.

32 Ibid., p. 52.

BIBLIOGRAPHY

"Annual Report of the Park Commissioners of the City of Milwaukee." Milwaukee: Ed. Keogh Printer, 1893-1898.

Buck, Diane M. "Olmsted's Lake Park," Milwaukee History - a publication of the Milwaukee County Historical Society, Vol. 5, No. 3, August 1982.

Built in Milwaukee - An Architectural View of the City. Milwaukee: City of Milwaukee Department of City Development Publications, 1983. An architectural survey of the city completed by Landscape Research Inc. for the city of Milwaukee mayor's office.

Condit, Carl W. American Building. Chicago and London: The University of Chicago Press, 1982.

Hess, Jeffrey A. and Frame, Robert. Historic Bridges in Wisconsin - Stone and Concrete Arch Bridges. Wisconsin Department of Transportation Publications, 1986, Vols. 1 & 2.

McArthur, Shirley de Fresne. North Point Historic District - Milwaukee. Milwaukee: North Point Historical Society, 1981. A publication of research done for the National Register of Historic Places nomination.

Milwaukee of Today - The Cream City of The Lakes. Milwaukee and Chicago: Phoenix Publishing Company, 1893. A short biography of important city residents is included.

"Ornamental Bridges for Lake Park, Milwaukee, Wis.". Engineering News, Vol. XL, No. 7, August 18, 1898, pp. 98-99. A written account of a paper presented by Oscar Sanne at the july 6, 1898, meeting of the Western Society of Engineers.

Plowden, David. Bridges: The Spans of North America. New York: W. W. Norton & Company, 1974.

Simon, Rodger D. "The City Building Process - Housing and Services in New Milwaukee Neighborhoods 1880-1910: Large Lots and a View - Ward 18." Transactions of the American Philosophical Society - Philadelphia 1978, Vol. 68, Part 5

The Milwaukee Business Directory. 1893 to 1906.

Tyrell, Henry Grattan. Artistic Bridge Design. Chicago: The Myron C. Clark Publishing Company, 1912.

Wells, Robert W. This is Milwaukee. Milwaukee: Renaissance Book Company, 1970.